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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/559,528	12/02/2005	Claudia Maria de Lacerda Alvarenga Baptista	Q81622	2715

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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER	
NGUYEN, HUY TRAM	
ART UNIT	**PAPER NUMBER**
1797	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/559,528	BAPTISTA ET AL.	
	Examiner	Art Unit	
	HUY-TRAM NGUYEN	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 April 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,8,11,20,22,27,28 and 31-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,8,11,20,22,27,28 and 31-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Claim 34 is amended to overcome the objection under 37 C.F.R. 1.75 (c). The objection of claim 34 is withdrawn.

Applicants show evidence that the subject matter of claim 28 is supported by the disclosure of the present specification. The objection of claim 28 is withdrawn.

Claim 1 is amended to be in the form of process steps. Thus, the objection of claim 1 is withdrawn.

The objections of claims 2-36 are also withdrawn.

Response to Arguments

Applicant's arguments filed on April 17, 2008 have been fully considered but they are not persuasive. Applicants argue that in the present FCC process, the conversion rise toward lighter products is observed as a result of a combination of conditions, including temperature and dispersion degree, which function together in order to minimize thermal cracking reactions and intensify the catalytic route and the presently claimed FCC process enables processing a higher amount of a feed more refractory to cracking while the process of Gross leads to an increased gasoline octane number by quenching, which is intended for reducing thermal cracking and a low amount of secondary feed to be injected. Examiner disagrees with that because even though the intended use of the process of Gross might be different from the present process, the process of Gross still teaches the claimed process as described in details below.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-4, 8, 11, 20, 22, 27-28 and 31-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gross et al. (US Patent No. 4,218,306) in view of Zhang et al. (US Patent No. 6,416,656 B1).**

Regarding Claim 1, Gross et al. reference discloses a process for the fluid catalytic cracking of mixed feedstocks of hydrocarbons from different sources, in a riser reactor **(Abstract)** and in the presence of a zeolitic catalyst, under cracking conditions **(Column 1, Lines 64-67)** for producing light products such as LPG, said mixed feedstocks comprising feeds A and B, with feed B being more refractory to cracking, wherein said process comprises the simultaneous segregated injections of feeds A and B in distinct riser locations **(Abstract)**, and includes the steps of:

a) injecting feed A at a location at the bottom of the riser reactor, which sets the base of the riser reactive section (Abstract – fresh gas oil), with a temperature rise ranging from 10 to 50°C **(Column 4, Lines 48-52 – 10 (50°F) - 65.5°C(150°F))**; and

b)injecting feed B an amount of from 5 to 50 wt% based on the total mixed feedstock **(Table 2, 49% by mass of secondary injection feed)**, downstream **(Abstract)**, after maximum LPG production from feed A, at one or more riser locations between 10% and 80% of the riser reactive section **(Abstract and Figure 1 - 10 to 30 feet or 6-17 %);**

wherein the injection conditions in a high dispersion degree of feed B comprise:

a temperature equal to or higher than the injection temperature of feed A **(Table 2 – Riser Mix Temperature).**

However, Gross et al. reference does not disclose the use of dispersion steam ranging from 5 to 20% in the FCC process. Zhang et al. discloses an optional pre-lifting medium such as a dry gas or steam being added to the FCC process with distillate oils in a range of 0-5:1 weight ratio **(Column 4, Line 65-Column, Line 9)**. It would have

been obvious to one having ordinary skill in the art at the time the invention was made to use the claimed dispersion steam since it was known in the art to use steam as a pre-lifting medium to reduce the residence time by helping carrying the distillate oils upward in a riser reactor **(Zhang et al. - Column 2, Lines14-15).**

Regarding Claim 2, Gross et al. and Zhang et al. references disclose the process according to claim 1, wherein feed A is a heavy distillation gasoil (HVGO) **(Gross et al. – Column 5, Lines 6-9 and Table 1- fresh feed & low aromatic index gas oil).**

Regarding Claim 3, Gross et al. and Zhang et al. references disclose the process according to claim 1, wherein feed B is produced by a thermal or by a physical separation process **(Gross et al. – Column 3, Lines 55-60 – product of thermal cracking).**

Regarding Claim 4, where/how the feed B being produced does not distinguish the process claim of the invention over the process of Gross et al. and Zhang et al.

Regarding Claim 8, Gross et al. and Zhang et al. references disclose the process according to claim 1, wherein the injection riser location of feed B between 25% and 50% of the riser reactive section **(Gross et al. – Figure 1).**

Regarding Claim 11, Gross et al. and Zhang et al. references disclose the process according to claim 1, wherein the overall catalyst circulation rate is kept nearly constant during the cracking of feeds A and B **(Gross et al. – Table 2 – constant feed rate).**

Regarding Claim 20, Gross et al. and Zhang et al. references disclose the process according to claim 1, wherein the temperature rise in the mixing region between

feed A and the regenerated catalyst is of from 10°C to 50°C, provided by the injection of feed B in a riser location downstream of the injection location of feed A, and is in the range of from 520°C to 650°C. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the claimed temperature ranges, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller,* 105 USPQ 233.

Regarding Claim 22, Gross et al. and Zhang et al. references disclose the process according to claim 1, wherein the riser outlet reaction temperature is in the range of from 520°C to 590°C **(Gross et al. – Column 4, Lines 7-9 – 850°F – 1050°F).**

Regarding Claim 27, Gross et al. and Zhang et al. references disclose the process according to claim 1, wherein the flow of the reactive catalyst to oil mixture is upwards **(Gross et al. – Column 3, Lines 51-52).**

Regarding Claim 28, Gross et al. and Zhang et al. references disclose the process according to claim 1 except for the flow of the reactive catalyst to oil mixture is downwards. It would have been obvious to one having ordinary skill in the art at the time invention was made to observe some downward flow of the reactive catalyst in the riser due to the gravity.

Regarding Claims 31, 32 and 33, Gross et al. and Zhang et al. references disclose the process according to claim 1, wherein the catalyst comprises a Y, a ZSM-5 zeolite, or a combination of Y and ZSM-5 zeolites in any amount **(Zhang et al. – Column 1, Lines 8-9 and Column 3, Lines 4-5)**. It would have been obvious to one

having ordinary skill in the art at the time the invention was made to use the claimed zeolites since Zhang et al. reference states at **Column 1, Lines 7-12** that such modification would increase simultaneously the yields of diesel oil and liquefied gas.

Regarding Claim 34, Gross et al. and Zhang et al. references disclose the process according to claims 31, 32, or 33, wherein the zeolite catalysts comprise zeolites as additives **(Zhang et al. – Column 2, Lines 64-67 – active component).**

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUY-TRAM NGUYEN whose telephone number is

(571)270-3167. The examiner can normally be reached on MON- THURS: 6:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HTN
6/19/08

/Walter D. Griffin/
Supervisory Patent Examiner, Art Unit 1797